

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

**ACADEMIC AFFAIRS**

Course Number: CLLS 312	Department: Clinical Laboratory Science
Course Title: Medical Microbiology II	Semester: Spring Year: 2014

**Competencies/Objectives**

<b>Competencies</b>	<b>Course Objective</b>
1. Students will possess an understanding of the course expectations and scope	<ul style="list-style-type: none"><li>• Review all CLLS affective behaviors required to be a laboratory professional</li><li>• Discuss student responsibilities as they relate to an active learning classroom</li><li>• Review semester calendar and due dates</li></ul>
2. Students will apply all safety protocols, universal precautions when practicing laboratory skills. (Re: CLLS 103)	<ul style="list-style-type: none"><li>• Practice all safety protocols and apply universal precautions when performing laboratory skills in the student laboratory and on clinical affiliation.</li></ul>
3. Students will possess knowledge of clinically significant spirochetes and proper techniques for identification.	<ul style="list-style-type: none"><li>• List the diseases caused by Spirochete infections</li><li>• List the pathogens that cause spirochete infections</li><li>• List and describe the stages of Syphilis</li><li>• Determine the appropriate laboratory testing for screening and confirmation of Syphilis</li><li>• Describe the characteristics of Lyme disease</li><li>• Name the vector that transmits Lyme disease</li><li>• Identify the morphology of spirochetes in a Gram stain.</li></ul>

Competencies	Course Objective
<p>4. Students will possess knowledge of clinically significant chlamydia, mycoplasma and rickettsia and proper techniques for identification.</p> <p>5. Students will possess knowledge of clinically significant viruses and proper techniques for identification.</p>	<ul style="list-style-type: none"> <li>• Identify the genera in each family of organisms</li> <li>• Compare the physical structure of Mycoplasma and Ureaplasma with that of other bacterial agents</li> <li>• Discuss the methods of replication possible for these organisms</li> <li>• List and discuss the disease states caused by these organisms</li> <li>• List and discuss any special laboratory testing used to diagnose these disease states</li> <li>• State the important characteristics of Chlamydia and Rickettsia</li> <li>• Describe the intracellular development cycle of Chlamydia and name both stages</li> <li>• List pathogenic species of each genus</li> <li>• List and discuss diseases caused by each</li> <li>• Categorize the Rickettsial diseases by typhus group and spotted fever group</li> <li>• Name the insect vector involved in the spread of Rickettsia</li> <li>• List special requirements for laboratory collection and processing of samples for testing</li> </ul> <ul style="list-style-type: none"> <li>• Discuss methods of classification of viruses</li> <li>• Be able to classify each virus discussed as DNA or RNA viruses</li> <li>• Describe the primary disease state caused by each virus discussed</li> <li>• List and describe structures and morphology of viruses (ex, icosahedral, capsid, envelope)</li> <li>• Be able to label a diagram of an unknown virus with all structures and morphology</li> <li>• List the steps of replication and describe what happens at each step</li> <li>• Discuss special collection and storage issues with laboratory specimens</li> </ul>

Competencies	Course Objective
<p>6. Students will describe the scope of Medical Parasitology and procedures involved in specimen processing.</p> <p>7. Students will possess knowledge of clinically significant protozoa, ciliate, flagellates, blood and tissue parasites, nematodes, cestodes, trematodes and proper techniques for identification.</p>	<ul style="list-style-type: none"> <li>• Describe laboratory testing used to diagnose viral illness</li> <li>• Interpret test results in regards to evidence of exposure, current illness, etc...</li>   <li>• Discuss safety and proper collection and processing of stool specimens for parasitic identification</li> <li>• List and describe types of symbiotic relationships</li> <li>• List types of replication and determine which are sexual or asexual</li> <li>• List types of hosts for parasites ( definitive, intermediate, etc..)</li> <li>• Describe the flotation and sedimentation method of stool concentration</li> <li>• Describe the procedure used to perform a wet preparation for Ova and Parasite identification</li> <li>• List the stains and reagents used for parasitic microscopic identification</li> <li>• Demonstrate a wet prep for O&amp;P identification in the lab.</li>   <li>• For each parasite listed, students will List the following:             <ul style="list-style-type: none"> <li>• Scientific and common name</li> <li>• Geographical location</li> <li>• Method of identification                 <ul style="list-style-type: none"> <li>○ Types of slides, stains, specimens</li> </ul> </li> <li>• Stages of development</li> <li>• life cycles phases</li> <li>• The disease caused by them and pathological conditions to man.</li> <li>• Identify the stages of development using illustrations, pictures, kodachromes, and microscopic slides.</li> <li>• Identify with 100 % accuracy a microscopic slide of these parasites.</li> </ul> </li> </ul>

Competencies	Course Objective
<p>8. Students will discuss the scope of medical mycology and describe the structural and cultural morphology characteristics.</p> <p>9. Students will possess knowledge of medically significant fungi and proper techniques for identification.</p>	<ul style="list-style-type: none"> <li>• Identify the characteristics of fungi from an illustration</li> <li>• Define the important features of fungi</li> <li>• Compare the cultural and structural aspects of fungus and bacteria</li> <li>• List the types of media used to grow fungi and describe specific colony morphologies</li> <li>• Identify the sexual and asexual reproductive structures</li> <li>• List and describe the staining methods for fungal species</li> </ul> <ul style="list-style-type: none"> <li>• Name pathogenic species involved in superficial, subcutaneous, systemic, and opportunistic fungal infections</li> <li>• Match the clinical manifestation with possible causative agents</li> <li>• List and discuss morphology (hyphae, spores, yeast form) for each fungus species discussed</li> <li>• List and discuss any unique testing for identification of causative agents (ex. Hair penetration, special media, etc...)</li> <li>• Demonstrate the identification of fungal structures microscopically in the lab with 100 % accuracy.</li> <li>• Perform microscopic preparations of fungi using KOH, saline and stains.</li> </ul>

Competencies	Course Objective
<p>10. Students will adhere to all affective behavioral objectives.</p>	<ol style="list-style-type: none"> <li><b>1. Safety</b> <ol style="list-style-type: none"> <li>a. Comply with all established laboratory safety regulations including:               <ol style="list-style-type: none"> <li>i. Standard precautions including PPE use and handwashing.</li> <li>ii. Practice proper handling and disposal of biohazardous materials.</li> <li>iii. Proper handling and disposal of sharps.</li> <li>iv. Exercise proper safety practices when using all laboratory equipment, reagents and chemicals.</li> </ol> </li> <li>b. Comply with established departmental dress code.</li> </ol> </li> <li><b>2. Work Practices and Organization</b> <ol style="list-style-type: none"> <li>a. Adhere to department attendance policies by arrive to lecture/ laboratory at the expected time, as denoted in the course syllabus.</li> <li>b. Follow all written instructions.</li> <li>c. Actively listen to verbal instructions.</li> <li>d. Ask quality questions (clarifying, analytical and related to task).</li> <li>e. Submit neat, legible, organized and complete assignments.</li> <li>f. Demonstrate effective time management and complete all tasks within the assignment time frame.</li> <li>g. Keep all laboratory work areas neat, clean and in order.</li> <li>h. Properly care for and use all laboratory equipment.</li> <li>i. Achieve competency and independence in performance of all demonstrated lab skills.</li> </ol> </li> <li><b>3. Cooperation and Teamwork</b> <ol style="list-style-type: none"> <li>a. Actively participate in class activities and discussions by:               <ol style="list-style-type: none"> <li>i. Effectively communicating with class members.</li> <li>ii. Showing respect and consideration for other students and instructors.</li> <li>iii. Willing to share ideas and equally contribute to assigned tasks.</li> </ol> </li> <li>b. In laboratory sessions:               <ol style="list-style-type: none"> <li>i. Share resources and equipment.</li> </ol> </li> </ol> </li> </ol>

<b>Competencies</b>	<b>Course Objective</b>
	<ul style="list-style-type: none"><li>ii. Work cooperatively by adjusting work style and speed.</li><li>iii. Discuss equitable task allocation and organization prior to performing.</li></ul> <p><b>4. Ethics and Professionalism</b></p> <ul style="list-style-type: none"><li>a. Respond maturely to constructive criticism and instruction and make appropriate modifications.</li><li>b. Seek advice when necessary, admitting limitations when appropriate.</li><li>c. Recognize and admitting errors.</li><li>d. Maintain patient confidentiality according to HIPPA regulations.</li><li>e. Communicate using appropriate terminology and professional procedures.</li><li>f. Display calm demeanor in all circumstances and maintain work quality under stress.</li></ul>